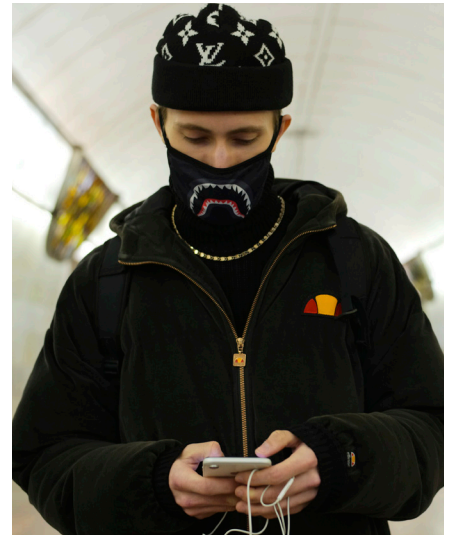




U.S. AGENCY FOR
GLOBAL MEDIA

UNITED STATES
BROADCASTING
BOARD OF
GOVERNORS

FUTURE OF DISTRIBUTION



PUBLIC SERVICE MEDIA

The U.S. Agency for Global Media is an independent federal agency overseeing public service media networks that provide unbiased news and information in countries where the press is restricted. Our mission is to inform, engage, and connect people around the world in support of freedom and democracy.

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Executive Summary

LOOKING FORWARD

In the next five to ten years, legacy broadcasting platforms such as satellite and terrestrial television or FM radio will remain critical to reaching audiences in many parts of the world. However, given the rate of innovation, USAGM also needs to be aware of the emerging technologies and consumer trends in its numerous markets. As new cellular and satellite technologies help expand worldwide access to the internet, media consumption patterns will shift in nearly all of USAGM's target countries. The least developed will see increased use of mobile internet and television for news, while the most developed will shift away from linear television and toward on-demand content delivered via a range of digital devices. These changes will contribute to higher levels of media consumption across all demographics, but the diversification of platform preferences and the ever more crowded media environments will make high-quality content essential. More importantly, that content will increasingly need to be custom-created for each platform. The *Future of Distribution* report is an attempt to summarize the trends most relevant to USAGM and provides a set of recommendations for maintaining and growing its global audience over the next decade.

OPPORTUNITIES FOR USAGM NETWORKS

The document summarizes a range of opportunities for USAGM networks to connect with audiences using new and emerging technologies. Some of the trends are platform-specific, such as the evolving nature of social media and their users' behavior patterns, the explosion of messaging apps, the growing potential of podcasts, as well as expansion of Over-The-Top (OTT) services worldwide. Other trends involve capabilities like Peer-to-Peer (P2P) data sharing, virtual and augmented reality that enhances audience experience, artificial intelligence and Natural Language Processing (NLP) that can improve reporting, editing, and content distribution, and the growing use of chatbots, push notifications, and smart devices by media organizations.

Emerging technologies can also help solve a number of content distribution challenges faced by USAGM networks. For example, the new tools and services can create additional channels to reach audiences and improve infrastructure capacity. Automation can improve content relevance and enhance language services' interactions with their users, which ultimately leads to trust. Most notably, innovations will provide new opportunities to circumvent censorship and regulatory challenges in USAGM target markets by enabling free data exchange and improving security, privacy, and anonymity.



Recommendations

Strategy and Priorities

BE STRATEGIC ABOUT DIGITAL PLATFORMS TO EMBRACE. As digital avenues for content distribution expand and both platforms and audiences become more sophisticated, it will increasingly be essential to create content specifically for each individual social network, aggregator, or device, rather than repackaging existing TV or radio news. The mix of distribution platforms that each language service can employ will vary dramatically, depending on the size of the service and the sophistication of the markets they serve. Some larger services should diversify and expand into emerging or regional platforms, while smaller teams might need to narrow their focus to just one or two digital destinations popular with their audiences that they can serve especially well.

BUILD FOR IDENTIFIED TARGET AUDIENCES. As media options expand, sophisticated audiences will seek content directly relevant to their interests. Where possible, language services and networks should:

- **Work with a younger audience.** Young internet users usually impact internet infrastructure and trends the most, and many of our target markets have enormous youth populations. USAGM content is often quite serious and formal, and not always created with the needs of under-30s in mind.
- **Develop content for particular niches.** Instead of building large and powerful sites or platforms, develop small and many, targeting specific audiences with personalized content. Social media pages with large followership usually have lower interaction rates and lesser impact in the end, due to the so-called “crisis of relevance.” Users spend more time in closed groups, chats, and channels, dedicated to their specific interests or professional fields.
- **Emphasize women.** Long-standing gender gaps in international media audiences are often amplified on digital platforms, where men are dramatically more likely to interact with our content. As digital

becomes a higher priority platform, it will take concerted effort (and advertising spending) to attract and retain female audiences.

PRIORITIZE CROSS-PROMOTION. The expansion of media markets and platforms will dilute brands and dramatically increase competition. Every existing and new platform should be used to advertise all of the others, and to drive current audiences to other USAGM content they might find compelling.

CONTINUE TO FUND INTERNET CIRCUMVENTION. New opportunities on digital are reliant on audiences' access to the internet, often through USAGM-funded tools.

CREATE SPACE FOR EXPERIMENTS WITH EMERGING TOOLS AND PLATFORMS. Devote time, resources, and support to new ideas that might later scale across multiple networks or services. Consider launching Innovation Labs or similar models at the networks and/or at the USAGM level.

COLLABORATE AMONG OURSELVES, AND WITH TRUSTED PARTNERS. As opportunities and challenges expand with the media landscape, make a concerted effort to share successes and failures with new technologies and platforms across our own networks and services, and with trusted partners like the DG7 outlets.

Capitalize on Opportunities

BUILD STRATEGIC PARTNERSHIPS WITH CONTENT AGGREGATORS AND IPTV/OTT PROVIDERS. Aggregators and OTT providers are becoming the entry point for internet users worldwide to look for news and multimedia content. Work with both global and local providers where possible as the range of options continues to expand. Creation of a significant library of documentaries and other evergreen content will be essential to meeting the demands of users on streaming platforms.

EMBRACE MESSENGERS. Non-algorithmic platforms and channels (including messengers) are on the rise worldwide and offer unique opportunities for two-way communication with audiences. As Facebook

consolidates its Messenger, Instagram Direct, and WhatsApp into one platform, it will offer new possibilities for publishers to create engaging channels. Telegram also looks poised to continue growing, especially in authoritarian states. USAGM and its networks should continue to use messengers where possible, and track best practices and emerging measures of success.

LAUNCH TARGETED PODCASTS. In areas seeing measurable growth in podcast consumption, USAGM services should experiment with a small number of compelling, mission-relevant podcasts. While these could also be used on radio, they should be created according to the conventions and formats of podcasts popular in the market.

EXPERIMENT WITH EMERGING DOMAINS, SUCH AS VIRTUAL REALITY AND AUGMENTED REALITY, TO PROVIDE AUDIENCES WITH MORE IMMERSIVE EXPERIENCE AND ENGAGING STORYTELLING. Virtual spaces, now dominated by gamers, can also be used for content distribution. Gamification of the content is vital to increase user engagement and loyalty.

ADOPT SUBSCRIPTION AND REGISTRATION MODELS. Identify and address barriers to registering users online, in cases where such registration would not put audience members at risk. Personalization of content and advanced digital advertising will require both collecting and protecting more information about individual users.

WORK WITH INFLUENCERS: BLOGGERS, COMMENTATORS, JOURNALISTS, AND POPULAR CONTENT CREATORS. In many countries, including USAGM priorities like Russia, influencers are a source of news for huge portions of the population, sometimes even more than traditional media sources.

CONTACT, NURTURE, OR RECOMMEND THAT THE U.S. GOVERNMENT INVEST IN LOW ORBIT COMMUNICATIONS SATELLITES. In the long term, these can be used to provide internet connectivity via satellite in many of our target markets without blocking.

Address Threats

PREPARE BACKUP PLANS AND SCENARIOS FOR WHAT DO IN CASE OF INTERNET SHUTDOWNS. All indications are that internet disruptions, shutdowns, and balkanization (e.g. Russia’s “sovereign internet” or Iran’s “halal internet”) will only increase in the coming years. USAGM and its networks must prepare back-up strategies, solutions, tools, and distribution infrastructure, including technical solutions for reporting and live streaming when internet and mobile service are blocked.

WORK WITH LIKE-MINDED ORGANIZATIONS. Leverage our U.S. government status and work more closely with existing USG-funded agencies that can play a role in keeping internet access open in fragile countries. Coordinate with USG entities working against digital media companies’ internal rules that could censor our content. Join and support organizations of content creators fighting for digital freedom, and become members of “open internet” or anti-internet shutdown groups, in the same way we are members of radio frequency coordination groups.

TREAD CAREFULLY WITH APPS AND PLATFORMS. Require content creators to vet with network leadership the apps and platforms on which they post content, especially those created in non-democratic countries with strong state-industry ties, as they may use our content to track back to our users or otherwise compromise their safety and privacy.

Definitions

See page 33 for definitions of significant terms used throughout this report.

Future of Distribution

Overview

In the next five to ten years, legacy broadcasting platforms (including satellite and terrestrial television and FM radio) will remain critical to reaching audiences in many parts of the world. As access to internet continues to expand worldwide (provided that increased competition brings down the cost of data), and access to reliable electricity expands in underdeveloped regions, media consumption patterns will shift in nearly all of USAGM’s target countries. The least developed will see increased use of mobile internet and television for news, while the most developed will shift away from linear television and toward on-demand content delivered via a range of digital devices.

INCREASING DIVERSIFICATION IN MEDIA CONSUMPTION

Many in the international media space assume that as high-speed internet becomes available in even under-developed and rural areas around the world, audiences will find it ever easier to access international media organizations’ content on mobile phones and

similar devices, reducing those audiences’ reliance on traditional media. While true, it is only part of the story. This view of media consumption evokes a zero-sum game that is unsupported by research, such as Nielsen’s Total Audience Report. The

digital space is far more crowded and competitive. Social is subject to the whims of algorithmic changes, self-selection, and censorship. Further, the sheer volume of available content can create a din whereby USAGM content simply gets lost in the crowd.

MEDIA USAGE IN AN INTERNET MINUTE			
Emails sent	188,000,000	Facebook logins	1,000,000
Mobile messages sent	41,600,000	Views on Twitch	1,000,000
Text messages sent	18,100,000	Dollars spent online	996,956
GIFs served by GIPHY	4,800,000	Hours of Netflix watched	694,444
Videos watched by YouTube users	4,500,000	Apps downloaded	390,030
Search queries via Google	3,800,000	Users scrolling on Instagram	347,222
Snapshots created by Snapchat	2,100,000	People tweeting	87,500
Swipes on Tinder	1,400,000		

This document will largely focus on emerging technologies and consumer trends of which USAGM needs to be aware. That said, it is not intended to undermine the importance and impact of existing modes of distribution as they evolve their role in the new media environment.

Instead of the assumed zero-sum game, consumers are actually spending more time with media each day — they are just spending less time at each individual destination. This is true across all demographics, although the platform preferences may differ from group to group. This diversification of use at the consumer level creates a new set of challenges for content creators. High-quality content will be ever more essential, and increasingly that content will need to be custom created for each platform on which it is delivered.

NEW LEVELS OF CENSORSHIP

In addition, myriad economic, technical, and even social factors affect media distribution tactics at the local level. Perhaps most notable for the purposes of this report are the much more sophisticated censorship and content blocking capabilities deployed by certain governments around the world.¹ In November 2019, in an unprecedented move, Iran demonstrated its ability to completely shut down the internet and mobile data for a full week to prevent anti-government protests from spreading further around the country. India's successful internet shutdown in the region of Kashmir, which started in August 2019, is now the longest on record.² Russia, meanwhile, is taking a new approach to internet censorship — its new “sovereign internet” law allows the government to monitor all transmitted data and block certain kinds of information as well as isolate the RuNet from the rest of the world wide web.³ These kinds of challenges create the need for a new distribution strategy, particularly in priority markets, that takes into consideration not only

1 Why Iran's Internet Shutdown Is A Stark Warning For Russia. forbes.com/sites/zakdoffman/2019/11/18/why-irans-internet-shutdown-is-a-stark-warning-for-russia

2 'Many lives have been lost': five-month internet blackout plunges Kashmir into crisis. theguardian.com/world/2020/jan/05/the-personal-and-economic-cost-of-kashmirs-internet-ban

3 Explainer: Russia Takes A Big Step Toward The 'Internyet'. rferl.org/a/explainer-russia-sovereign-internet-law-censorship-runet/30248442.html

the potential for a complete blackout, but also the ability by hostile governments to selectively block data and certain transmissions.

HOLISTIC DISTRIBUTION SOLUTIONS

USAGM has solid awareness of the new distribution options and technologies. But even newer is how these tools work together with existing distribution platforms. For example, linear television, while still serving audiences, is increasingly used as a brand-builder and promotional vehicle for on-demand media consumption. Properly aligned, digital and existing assets work together, in a holistic approach, in an effort to prevent go-it-alone digital content from getting lost in the din. The media companies that best deploy a holistic distribution solution that features a wide array of assets will have the best chances of success, provided that the content is compelling.

The following sections summarize a range of opportunities for USAGM networks to connect with audiences using new and emerging technologies. Social media, while not new, will continue to evolve, offering both new opportunities and new challenges. Messaging apps are already the most widely-used platforms in most of the world, but still underutilized by news organizations. Over-the-Top allows direct to consumer delivery and has driven a huge change in consumer behavior in developed countries. New cellular and satellite technologies (4G, 5G, and Low Earth Orbit satellite) offer increased connectivity in underserved areas. Podcasts can deliver young audiences, but require especially compelling storytelling and production. A broad range of emerging technologies will allow for interesting opportunities to engage audiences, but require a great deal of learning and adaptation among journalists. Finally, innovations will create new possibilities to circumvent censorship, and new regulatory challenges in USAGM target markets.

USAGM Distribution Infrastructure

USAGM, broadly speaking, uses the term “distribution” to describe the variety of platforms on which audiences around the world will consume the broad range of content in which they are interested. Strictly speaking, however, “distribution” is simply about getting content to audiences.

Today and in the foreseeable future, that means ensuring that USAGM's content — in all its forms and flavors — is available to audiences anytime, anywhere, and on any device available to them.

MODERNIZATION OF DELIVERY PLATFORM

To make USAGM's video and audio content compatible for the wide range of devices people use to consume content, over the past 24 months the USAGM Office of Technology, Services, and Innovation's (TSI) Global Networks Division has modernized its delivery platform and created an industry-leading capability to deliver content to any screen globally. Encoding platforms have been deployed in the Network Control Center and interconnected to each USAGM network's playout system. This delivery platform includes the ability to create multiple program streams and point traffic to media transport networks, satellite service providers, public internet, cloud service platforms, and anywhere else content is available.

At the end of 2019, an industry-leading, cloud-based distribution and transcoding system was introduced and integrated to enable all USAGM content to be formatted for all global web and mobile viewing applications. Special focus on integrating USAGM content into social media platforms popular across the globe is of high importance. The Agency's ability to capture, encode, transcode formats and deliver across all transport mediums enables this goal.

LOOKING TO THE FUTURE

In the years ahead, as technologies and audience targeting continue to evolve, TSI will outsource more of its delivery capacity to third-party service providers, who can upgrade technologies and mobilize staffing resources more rapidly than USAGM can. TSI's distribution role will be less about building and maintaining our own complex and expensive distribution systems, and more about managing a range of service providers to design and deliver a highly efficient, highly reliable distribution network that can evolve to meet the agency's needs.

Social Media

Social media is continually evolving, and, according to eMarketer, the number of social media users is projected to reach three billion in 2021. The growth, development, and integration of various social media platforms are predicted to continue. USAGM and its networks must keep up with this evolution, follow the trends, and stay on top of our audience's information needs.

We can expect further development of social networks that rely on algorithms and the so-called “social graph”^{4,5} of interconnections between users to prioritize content, as well as messaging apps, discussion boards, and forums, where content distribution is driven primarily by user activity. On the one hand, social platforms will make an effort to provide users with more personalized and intimate experiences, resulting in content users are most likely to interact with. This can lead to the problem of “filter bubbles,” where those with similar interests and views to their own surround each user. On the other hand, there is growing algorithm fatigue, with people moving towards platforms where they have more control of their own feeds.

Trends

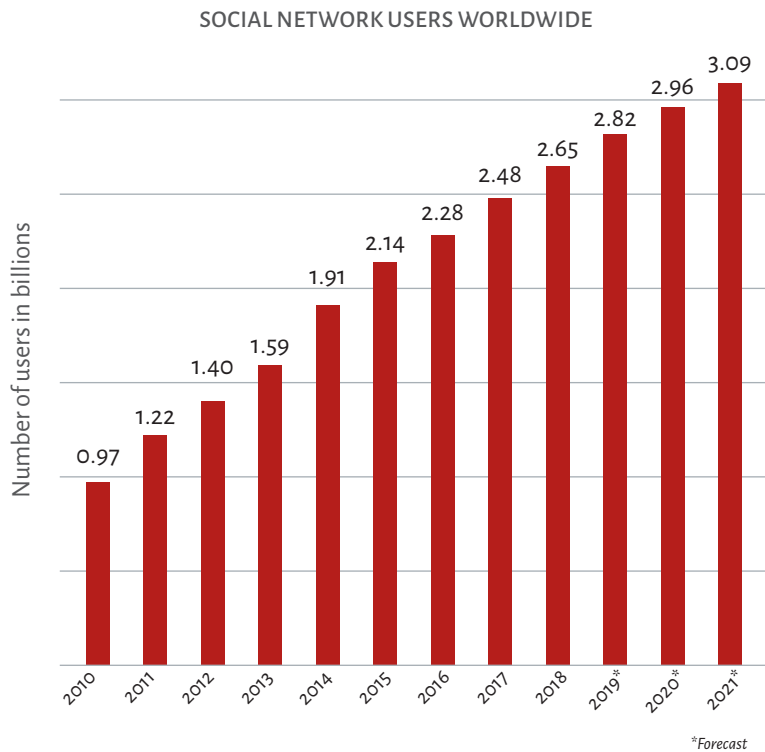
Several trends will influence the development of social networks over the coming few years:

VIDEO. According to a Cisco Study, by 2021, 80% of the world's internet traffic will be video.⁶ The production of video content is getting cheaper thanks to the full availability of free or low-cost tools to create social video content and animation for distribution on social media platforms. AI-powered tools like the new Auto Frame feature for Premiere Pro will help automate the editing process for various social platforms. New

4 Social graph draws an edge between you and the people, places, and things you interact with online. Source: businessinsider.com/explainer-what-exactly-is-the-social-graph-2012-3

5 The Rise of Social Graphs for Businesses hbr.org/2015/02/the-rise-of-social-graphs-for-businesses

6 www.cisco.com/c/en/us/solutions/service-provider/visual-networking-index-vni/index.html

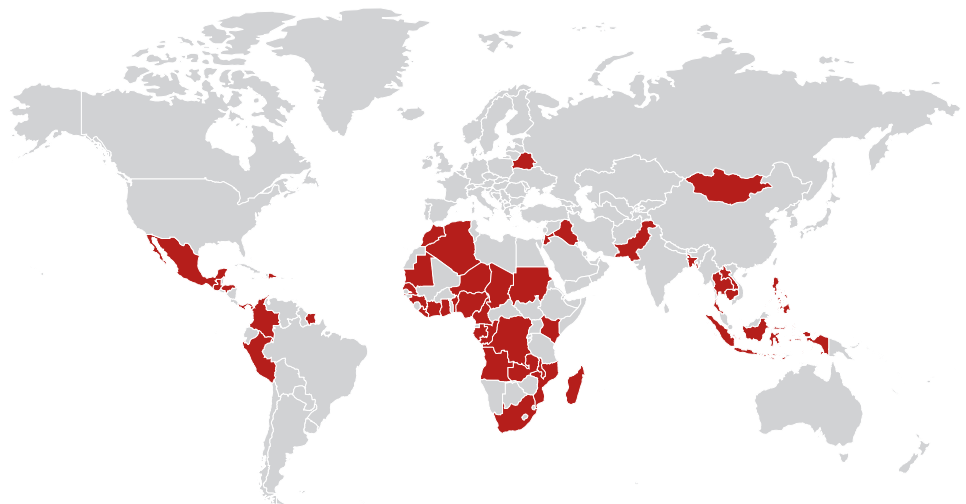


Data source: eMarketer, via Statista

smartphones by Apple with three inbuilt cameras make high-quality video content creation accessible to non-professionals, which lead to an increase in citizen video journalism and video blogging. Digital-first organizations, such as NowThis, HuffPost, and AJ+ were early leaders in social video. They created a brand-new infrastructure for video content production and diversified distribution across platforms and sub-brand projects. For example, NowThis manages ten different projects focusing on different audiences (News, Politics, Future, Entertainment, Her, Weed, Money, Food, Sports, and Nerd). There are many local and regional Instagram/Facebook-Only outlets producing or repackaging content (original or from agencies) for social media audiences, such as Kometa (Romanian), OpenMedia, TokMedia (Russian) and many others. Currently, algorithms on major social media platforms prioritize video content in users' newsfeeds, leading traditional publishers (such as *The Economist*) to embrace social video. With older audiences becoming social media users, more in-depth reporting and serious analytical content can be expected on platforms such as YouTube and IGTV in the near future.

ZERO-RATING. Social media companies including Facebook, YouTube, Facebook-owned WhatsApp, V Kontakte, Odnoklassniki, and WeChat have partnership agreements with local telecom providers in many developing countries that allow free access to their platforms in contexts where users generally pay as they go for data. (Countries where Facebook’s “Free Basics” service is available are shown in red below.)⁷ Zero rating violates one of the founding principle of the Internet — Net Neutrality,

COUNTRIES WHERE FACEBOOK’S “FREE BASICS” SERVICE IS AVAILABLE



Source: Internet.org

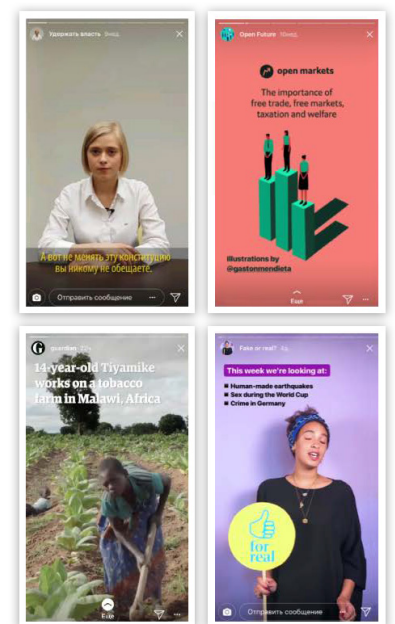
which means that each Internet Service Provider must treat all Internet communications equally. This has the potential to significantly distort the experience of many newcomers to the internet, “trapping” them on a handful of popular sites without the ability to follow links or browse widely. Many users do not make additional effort to “leave the bubble” and even try other services. In non-democratic societies, such as Russia (Mail.ru, VK, OK) or China (WeChat), it can be used for content censorship or filtering, as well as exposing the users to “politically and culturally

⁷ Where we’ve launched. info.internet.org/en/story/where-weve-launched/

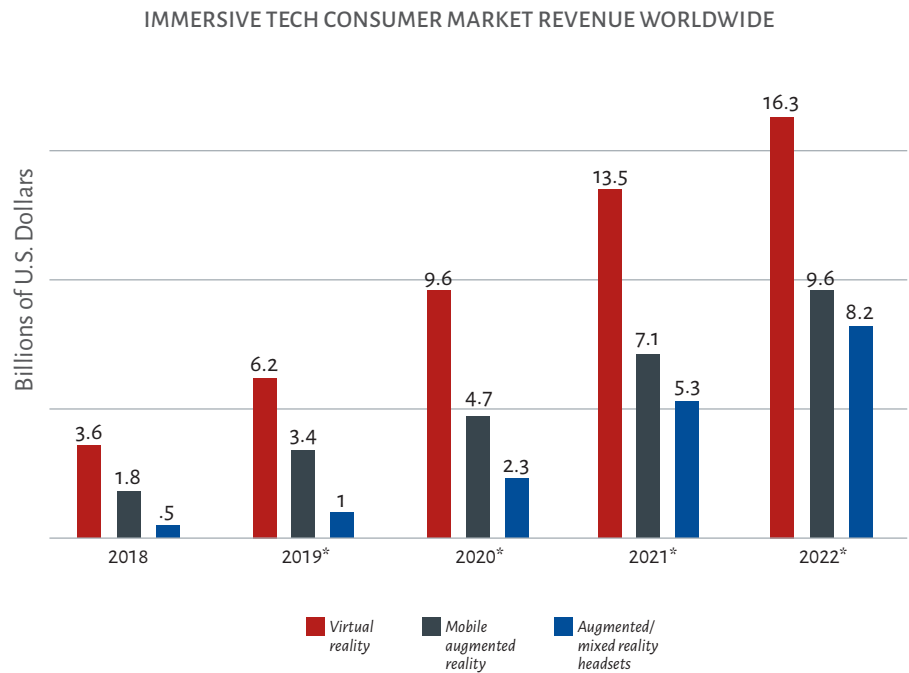
right” content. In Russia, for example, local social media platforms OK and VK, which are free to access for users, are often used for Government campaigns such as “Hotline with Putin.” Each USAGM service should track the zero-rating arrangements available in their markets, as they may indicate a need to create content that can live entirely within one or a few specific platforms.

“BALKANIZATION” OF SOCIAL MEDIA. Some local or regional platforms are emerging in different regions (for example, Russian Mail.ru launched MyTeams, Yandex launched Aura). Global brands have introduced new services aimed to serve niche audiences (Mixer, Lasso). China has already created multiple regional versions of TikTok with different “localized” concepts and audiences. (TikTok is both popular among young people and concerning from an information security perspective, given its ties to the Chinese government. The app has been banned by the U.S. Army, and USAGM should approach its use with extreme caution.) The process of “balkanization” can coexist with ownership consolidation, and big companies will make an effort to purchase or partner with emerging or local platforms.

“EMOTIONALIZATION” OF SOCIAL MEDIA. Aiming to provide more personal experiences, social media platforms will try to build interactions between users on a more emotional level. With platforms prioritizing multimedia content that evokes reactions and comments, the rewards system of social media will stimulate creators to generate more emotional content, potentially cultivating stereotypes and biases in the process. Instagram and TikTok are examples of emotional media that create unprecedented and intimate connection between user and publisher, however they can also influence mental health. German *20minuten* and the *Washington Post* use TikTok to tell youngsters about the informal life in their newsroom, while NowThis Politics publishes quotes from politicians that resonate and provoke, and the World Economic Forum creates simple video explainers and asks for users’ opinions.



Stories found on Instagram, YouTube and Facebook are other examples of emotional media.



Data source: SuperData Research, via Statista

*Forecast

IMMERSIVE TECHNOLOGIES. Technologies such as Augmented Reality (AR) and Virtual Reality (VR) provide a wide range of opportunities to enhance interactions and experiences on social media. VR headsets such as Oculus and the new version of HTC VIVE utilize social platforms such as Facebook's Spaces and Oculus Rooms and the soon-to-be-launched Horizon multiplayer world⁸ to enable user interaction while consuming content and creating their own virtual locales. Using customized avatars, users can have real-time conversations, comment, like, play games and watch movies with their friends. AR and VR hardware will become more accessible around the world and users will spend more time using these immersive tools, which will likely influence their behavior on all social media platforms.

⁸ Facebook Horizon. oculus.com/facebookhorizon

Some news organizations have already taken note of these trends. RT has its RT360 project⁹ — an app that provides VR set users exclusive panoramic content — while others like BBC, Al Jazeera, and China Global Television Network regularly publish 360-degree video stories and feature augmented reality effects during their TV newscasts. Business news site Quartz and the *New York Times* use immersive storytelling as part of their coverage — in fact, readers can view select *NYT* stories in augmented reality through its app. Examples include a look at the Mars InSight lander¹⁰ and a close look at four athletes who participated in the 2018 Winter Olympics.¹¹

SERVICES INTEGRATION. Other business and entertainment services will include more social media components. Facebook’s Workplace is a combination of a business messenger with a space for social discussions and interactions, similar to what’s happening on Facebook Groups right now. The online gaming industry (like a global multiplayer game World of Tanks) introduced chats and forums for engaged participants. Users meet each other and communicate when playing, creating teams. Users can create and post content on these spaces. Dating app Tinder introduced a newsfeed in several regional versions of its app so people can post videos and texts, and interact with other users from their city or region. Netflix and other IPTV services will likely integrate discussions, polls, and other interactive components alongside their video streaming services.

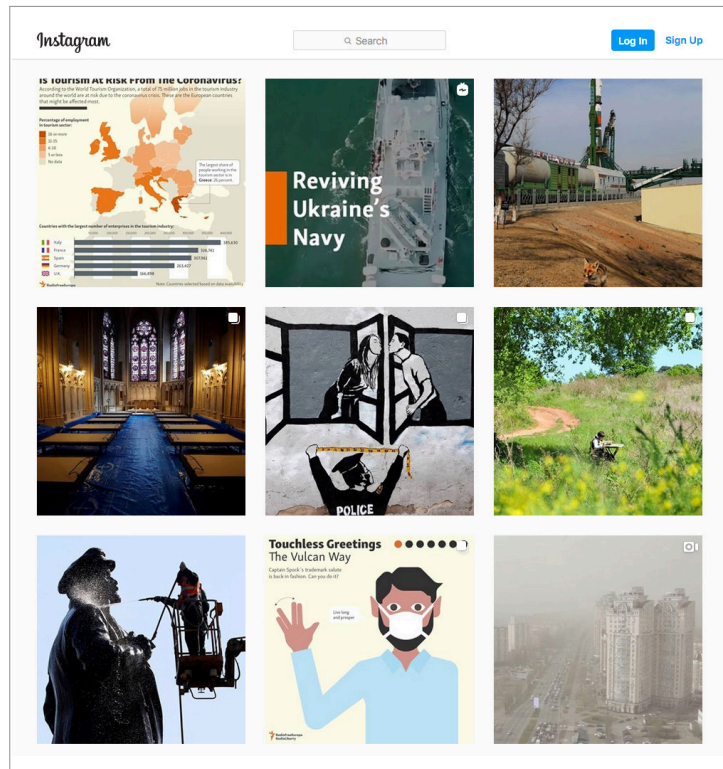
MOBILE-FOCUSED EXPERIENCE. An estimated 3 billion people¹² will have access to mobile phones by 2020. In creating content for social media, USAGM networks will need to focus on creating mobile-friendly content. “Stories” are one of the recent trends; short (from 15 to 60 sec) vertical videos that can be seen exclusively on mobile devices are already available on YouTube App, Google, Facebook, Instagram, and V Kontakte. The popularity of stories as a format, fueled by competition for attention,

9 RT 360. rt.com/360

10 Augmented Reality: Explore InSight, NASA’s Latest Mission to Mars. nytimes.com/interactive/2018/05/01/science/mars-nasa-insight-ar-3d-ul.html

11 Augmented Reality: Four of the Best Olympians, as You’ve Never Seen Them. nytimes.com/interactive/2018/02/05/sports/olympics/ar-augmented-reality-olympic-athletes-ul.html

12 Social Media in 2020: 11 Data-Backed Predictions. blog.hootsuite.com/social-media-2020/



RFE/RL's Instagram feed

will likely reshape content consumption as well as content production and distribution. We can expect more tools and platforms featuring stories as well as the emergence of other mobile-friendly or mobile-exclusive storytelling formats.

AUTOMATION OF SOCIAL EXPERIENCES ONLINE. Due to the rising number of social media services, users will not be able to be omnipresent. It is likely that content sharing will be automated. Some emerging services like IFTTT allow users to set up rules (something like “Automatically post a new photo to Twitter,” or “Check me in on Facebook when I am in a new place”). Instead of making manual updates, devices will be posting, sharing, and interacting on behalf of the user. The newly announced service Threads by Instagram is supposed to make automatic updates on users’ lives, which will be visible to user-selected groups of friends.

Messaging Apps

Messaging apps are among the most widely-used technologies worldwide, offering an enormous potential audience for targeted content distribution. With 1.6 billion active users, WhatsApp is number one among messaging apps, closely followed by Facebook Messenger with 1.3 billion users and the Chinese messaging app WeChat with 1.1 billion users.

Businesses and brands actively incorporate messengers, creating “conversational commerce” at the intersection of messaging apps and shopping. Political campaigners use apps to deliver a message directly to people’s phones. Media networks create groups and channels within specific applications where anyone can join to receive news updates and special reports.

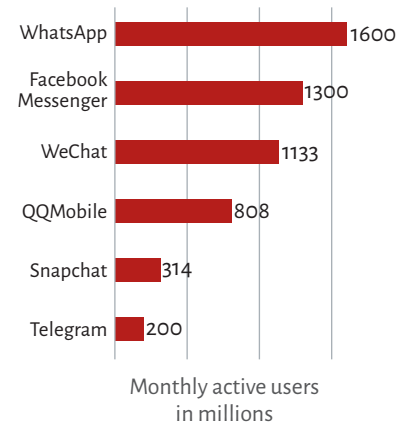
A SECURE CHANNEL OF COMMUNICATION

In addition to tapping into a large potential audience base, messaging apps also offer a more secure (compared to social media) channel of communication because of end-to-end encryption. While some messaging apps are more secure than others, they penetrate countries where USAGM’s networks are otherwise blocked. For example, Telegram is a major means of communication in Iran, while IMO is one of a small handful of apps that are accessible in Turkmenistan. RFE/RL’s Uzbek Service uses Telegram to crowd-source as well as distribute content. State officials, activists, and members of the secret services anonymously share photos, videos, and screenshots with journalists to use in their reporting, which the service then shares with subscribers in its extremely restrictive operating environment. Other examples of news organizations using Telegram to reach their audiences include Bloomberg and DW Amharic, who share news digests and notify users about breaking news through the app.

LIMITED PERFORMANCE DATA

Apps also pose some significant challenges for media organizations, including limits on performance data and difficulties with distributing content to large groups. Each of the major messaging apps offers different and very limited performance data, usually exposure metrics (number of

MOST POPULAR MESSAGING APPS,
OCTOBER 2019



Data source: Statista

USING TELEGRAM TO CROWD-SOURCE AND DISTRIBUTE CONTENT

Users Share Insights



Editorial Process

JOURNALISTS:
Data Collection
Analysis
Fact Check
Writing
Re-Packaging



Distribution

Website
Messengers
YouTube
Social Media

subscribers and impressions) that do not reflect engagement. However, if the concern is whether the content is getting out, then those metrics provide some insights, though traffic from the messaging apps is hard to identify. Metrics also vary from app to app making it hard to standardize reporting across them. However, as messaging apps gain importance for content distribution, the companies behind them will likely provide more insights over time.

RESOURCE HEAVY DISTRIBUTION

Distribution via messaging apps is resource-heavy because it is two-way personalized communication. Some apps provide infrastructure and support for developing bots that help businesses overcome that challenge, but tools optimized for communication among small groups (notably WhatsApp) cannot always be easily configured to support a broadcast function. At the moment, WhatsApp does not have a channel feature, so news organizations mostly use WhatsApp Groups and automated bots for content distribution. For example, The Telegraph encourages users to subscribe to their two-minute audio updates on WhatsApp, where they provide a digest of the top news of the day, by sending a message to *The Telegraph's* number on the app. Other organizations, such as *The Economist* — which experimented with publishing charts and other visual content — *The Wall Street Journal*, BuzzFeed, the BBC, TechCrunch, and Mashable have embraced the Line app in an attempt to grow their global audience.

2020 DEVELOPMENTS

In 2020, Facebook plans to integrate WhatsApp, Facebook Messenger and Instagram Direct into one app with new features such as live streaming, groups, and channels, resembling these features on Line, WeChat, or Telegram. Publishers on this integrated messenger will have the ability to create their own entry pages and branding, as well as adding a more diverse range of content, which will create new opportunities for news collection and content distribution using that platform.

MISINFORMATION CHALLENGES

Finally, misinformation, fake stories, and hate speech have proliferated on messengers in numerous countries, impacting elections campaigning in Brazil and inciting mob killings in India. While this kind of problematic content is also widespread on more open social media platforms, it is especially difficult to track, debunk, or remove on messaging apps, which generally use end-to-end encryption so that even the platform owners cannot see the content as it circulates. Platforms are experimenting with solutions including fact-checking and limits on content forwarding, with limited success to date.

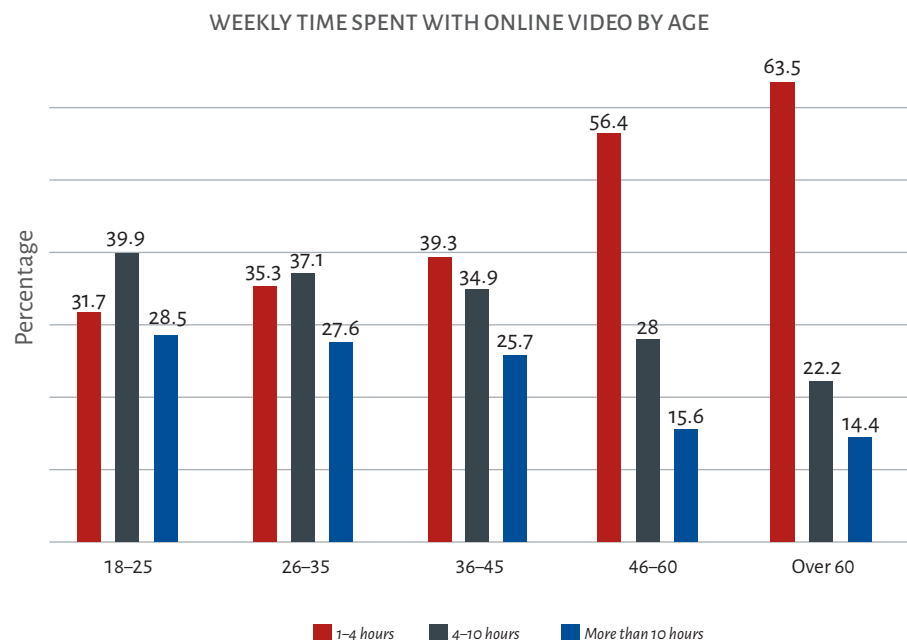
Over-the-Top

OTT (Over-the-Top) offers a significant opportunity for USAGM to distribute content directly to the consumer. The business case for OTT at USAGM is compelling: OTT allows USAGM audiences to watch our content on the best screen available, including large screen televisions, on-demand, on an array of widely available devices.

Consumer use cases include: 1) audience members catching up on programs that they would regularly view on an affiliate, but missed; 2) service for audience members in a target area who do not currently have an affiliate; and 3) service for diaspora audiences living outside the target region.

RAPID GROWTH GLOBALLY WITH SMALLER, BUT INCREASING GROWTH IN DEVELOPING WORLD

The overall global uptake of OTT services is rapid, and in some cases astounding. Globally, the 5-year compound annual growth rate for Subscription Video on Demand (SVOD) and Subscription Linear (SLIN)



Data source: Statista

is 13%, with a projected 443.5 million subscribers by 2023. This translates into a \$68 billion industry today, and a \$159 billion industry by 2024. Notably, the above numbers are for paid subscriptions. The number of people and households participating in some sort of OTT behavior is actually much higher since there are many services that are free.

As might be expected, projecting global or Western numbers against USAGM's largely developing world audiences is perilous. For example, sub-Saharan Africa's OTT household projection for subscriptions stands at just 1.29% by 2024, due to the prohibitive cost of high-speed internet, even in places where it is widely available. Still, even within Africa, the 5-year compound annual growth rate is 14%.

It is important to keep in mind that what is truly in play here is the major behavioral change in viewing habits and expectations. Many developing countries were actually ahead of the curve in terms of adopting video on demand as teens and young adults took to torrent sites to access proprietary entertainment content like *Game of Thrones*.

Interestingly, significant investments in content production in developed countries raises the bar around the world, driving consumers to find that content whether it be legally or illegally. It is this behavioral change that compels USAGM to provide on-demand service to the best screen available.

CHALLENGES

Deployment of an OTT/Video on Demand solution is far from a silver bullet. Since OTT content is delivered via the Internet, it is not necessarily a solution for denied markets with governments in the habit of blocking Internet access. Internet circumvention tools may provide at least a partial solution, but proxies can slow bandwidth speed, possibly diminishing the consumer experience.

RELATIONSHIP TO TRADITIONAL BROADCAST & SATELLITE DISTRIBUTION

Further, OTT is not necessarily a replacement for traditional broadcast and satellite. As options proliferate, cutting through the clutter is increasingly difficult. OTT is a complement to traditional television broadcasts and satellite transmission. For example, a full 66% of HBO

minutes watched are on-demand. Thus the role of linear HBO is not only to provide a “live” experience, but also to serve as a promotional and marketing vehicle for the on-demand experience.

Another example of the relationship between broadcast/linear and on-demand can be found in Nielsen’s +7 ratings service in the U.S. With so much catch-up TV occurring, Nielsen now delivers viewership numbers for all viewing up to seven days after the initial airdate. Often this practice increases audience sizes for programs as much as 30%. Some programs have seen 60% increases +7, as audiences who missed the live airing catch up in the coming days.

DIVERSE REGIONAL PLAYERS

There are other complications. Among them is regional platform choice. Roku, while a household name in the West, is unknown in Asia as the service cannot deliver non-Latin fonts. LG, a huge manufacturer of air conditioners, also has strong uptake for its “smart” TVs in the Middle East. Chromecast is a relatively cheap solution that turns televisions from even obscure manufactures into OTT devices, so long as they have an HDMI port. Lastly, even as the data makes an extremely compelling case for behavioral change to on-demand, the last chapter has yet to be written for the streaming OTT business. Nigeria’s Iroko has lost tens of millions, Malaysian startup iFlix lost money with every new subscriber, and African satcaster Multichoice’s on-demand solution Showmax looks to defend the turf as Netflix buys up all the local talent. Even in the United States, media giants such as Disney+ and Netflix are competing for consumers who may prove unwilling to subscribe to two separate on-demand content providers.

These issues aside, starting at a young age, consumers are taught daily to expect great content, on demand, on the most convenient screen possible. Thus USAGM has a strong opportunity in making SVOD and SLIN available to its audiences as part of a broad, robust content delivery mix.

4G, 5G and Low Earth Orbit Satellites

AVAILABILITY OF BROADBAND MOBILE IN RURAL & UNDEVELOPED WORLD

Many rural and undeveloped areas around the world still do not have access to broadband mobile internet via Worldwide Interoperability for Microwave Access, or WiMax (one of two technology standards able to deliver 4G service), or even Long-Term Evolution, LTE (the other 4G option). 4G technologies are still coming to the more remote, less populated regions of Africa and Asia and will likely remain the best available connectivity option in those parts of the world for at least several more years.

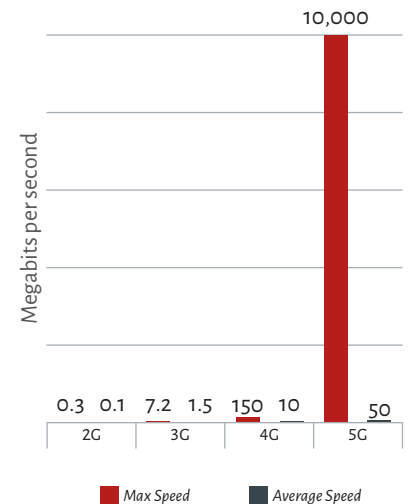
ROLLOUT OF 5G BEGINNING IN 2020

The latest iteration of cellular technology is 5G, or fifth-generation wireless. Data transmitted over 5G wireless connections are expected to offer much higher speeds (as high as 10 Gbps) with very little delay, and enable a tremendous upsurge in data volume that can be transmitted. Rolling out 5G at scale will be enormously expensive, requiring new cellular infrastructure and receiving devices. Nonetheless, the technology offers consumers who rely on cellular data connections to access the internet and other digital portals the opportunity to access a much broader range of media content (and other data-based services, such as distance learning, remote medicine, gaming, etc.) than is currently available.

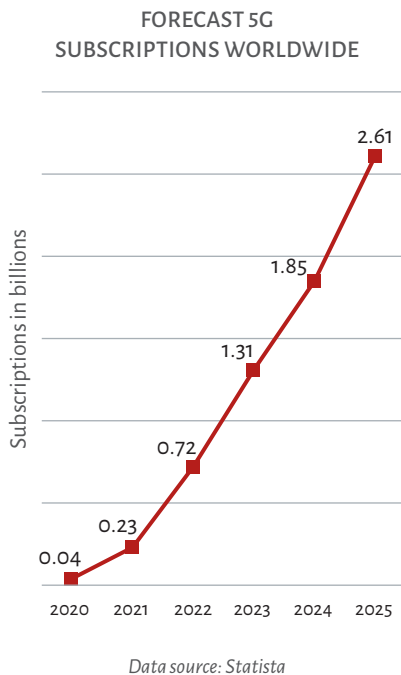
2020 will be the year 5G will start to roll out in wealthier, developed countries. Current 5G cell sites provide coverage of about 800 feet, making this technology viable only in densely populated, urban areas. However, the next 5–10 years are going to see major advances on both the network and receiver sides. A handful of 5G-capable devices appeared in 2019 with many more to be unveiled in 2020 — yet the “5G capable” devices of today will likely not be compatible with 5G that will be available a few years from now.

That said, 5G is the next “Big Thing” in telecommunication. Even in parts of the world that currently lack traditional internet services because

5G PROMISES 5 TIMES THE AVERAGE SPEED OF 4G MOBILE BROADBAND



Data source: Digital Trends



copper or fiber optic cable cannot be feasibly installed (rural Africa, for example), there are usually mobile cellular services. Where these services are eventually upgraded to 5G, “final mile” delivery direct-to-consumers and to USAGM broadcast affiliates will be greatly improved, enabling new and much broader opportunities for reaching target audiences.¹³

LOW EARTH SATELLITES OFFER PROMISE OF WIDER WIRELESS ACCESS

Another technology with theoretical potential to improve global content distribution is low Earth orbit (LEO) satellites. Groupings (referred to as “constellations”) of LEO satellites could help provide internet and other data services more affordably, with faster speeds and lower latency than traditional satellites and completely bypassing traditional wireless networks. While plans for LEO satellite networks have been around for many years, only recently have a few conglomerates and joint ventures begun to raise the substantial revenues required to implement those plans. SpaceX, Telesat, Facebook, and Amazon, for example, want to place thousands of LEO satellites into orbit. Some have already started launching initial satellites and plan to have operational networks as early as this year,¹⁴ though broader and more viable coverage will likely take at least several more years.¹⁵ The strongest demand for satellite-based data services is likely to come from areas where data connections are currently lacking, restricted, or of poor quality.

OPPORTUNITIES

Clearly, as high-speed internet becomes available in even under-developed and rural areas around the world, audiences will find it easier to access USAGM content on mobile phones and similar devices. This will further reduce those audiences’ reliance on traditional media, especially

¹³ Chart data from “5G vs. 4G: How will the next generation improve on the last?” digitaltrends.com/mobile/5g-vs-4g/

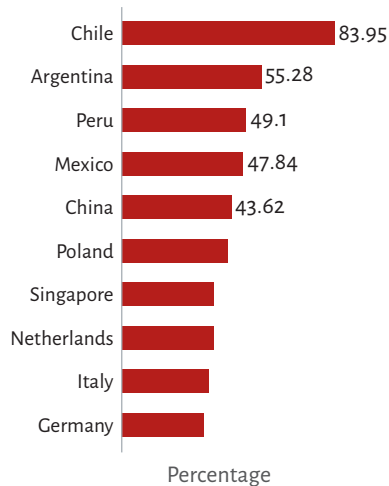
¹⁴ SpaceX aims to provide internet coverage with Starlink constellation as soon as mid-2020. theverge.com/2019/10/22/20927277/spacex-starlink-broadband-satellite-constellation-internet-2020

¹⁵ Why Low-Earth Orbit Satellites Are the New Space Race. bloomberg.com/news/articles/2019-08-09/why-low-earth-orbit-satellites-are-the-new-space-race-quicktake

medium wave and shortwave radio. The digital space is far more crowded and competitive, so producing high-quality content will be ever more essential. And our ability to help audiences circumvent censorship tools and banned platforms will need to keep pace with the migration from traditional to exclusively digital platforms.

The evolution of USAGM's distribution to IP (internet protocol) means that USAGM can send specific content to specific places. For example, working with a partner or setting up our own access point and hotspot, USAGM could provide on-demand and/or live content over digital devices in a refugee camp, for example, or a small city. Depending on the setup, USAGM content could be available to everyone with a device, even those who cannot afford traditional mobile data or cell service.

TOP TEN COUNTRIES WITH GROWTH IN
PODCAST AUDIENCES (SPRING 2019)



Data source: Voxnest

Podcasts

Until very recently, podcasts were almost exclusively an English-language phenomenon. The latest data suggest the emergence of podcasts primarily in Europe and parts of Asia,¹⁶ and several recent developments indicate that a number of USAGM target regions, including Latin America, will soon experience significant increases in podcast consumption. (To the left, a chart from Voxnest lists the top countries for podcast growth as of spring 2019.¹⁷)

SEARCH ENGINE CHANGES INCREASE PODCAST DISCOVERY

First, easier discovery will change the game in podcasting. Having indexed 2 million podcasts by mid-2019, Google is now surfacing podcast episodes in search results based on keywords and will let users play back the results directly from the results page.¹⁸ This will boost the growth of listenership of podcasts, not only on a new player like Google Podcasts, but also on other major players such as Apple Podcasts and Spotify. Spotify, which is now actively investing in podcasts, is also rapidly expanding internationally.¹⁹ Its wider availability around the world and options such as Spotify Lite — an Android-only app that runs quickly on older phones and slower networks — will make podcasts available to hundreds of millions of new potential listeners.²⁰

WIDE USE OF MOBILE DEVICES EXPAND MARKET

Second, an increasing number of consumers own devices that can easily access and play podcasts. Most consumers listen to podcasts on their smartphones as new generations of these devices are pre-loaded

16 Podcast Popularity Across the Globe. [statista.com/chart/14306/podcast-adoption/](https://www.statista.com/chart/14306/podcast-adoption/)

17 Top Growing Podcasting Countries – March 2019. [voxnest.com/top-growing-podcasting-countries-march-2019/](https://www.voxnest.com/top-growing-podcasting-countries-march-2019/)

18 Google Search will now show you podcast episodes (but it won't have to link back to Google Podcasts). [niemanlab.org/2019/08/google-search-will-now-show-you-podcast-episodes-but-it-wont-have-to-link-back-to-google-podcasts/](https://www.niemanlab.org/2019/08/google-search-will-now-show-you-podcast-episodes-but-it-wont-have-to-link-back-to-google-podcasts/)

19 Spotify is spending hundreds of millions to become a major podcasting player — and Wall Street sees massive potential for the stock. markets.businessinsider.com/news/stocks/spotify-stock-price-will-get-boost-from-podcasts-wall-street-2019-6-1028307193

20 10 Questions for Cecilia Qvist, the Woman Leading Spotify's Global Expansion. time.com/5622503/10-questions-spotify-cecilia-qvist/

with podcast apps. The rising popularity of voice devices such as smart speakers and integration of podcast applications in vehicles will also drive audience numbers globally. More importantly, podcasts' availability offline makes them easy and cheap to consume, as listeners can download episodes while connected to Wi-Fi.

MAJOR PLAYERS

The three giants: Google, Apple and Spotify will continue to dominate global podcasting. Slow to embrace podcasts at first, Google now pre-installs its Google Podcasts app on all Android phones. Android owns 80 percent of the world's smartphone market share, which puts Google in a good place to catch up with Apple and Spotify. Spotify — currently the global market leader for audio streaming²¹ — recently launched Spotify for Podcasters as they are making a big push into podcasting. Spotify for Podcasters promises podcasters more robust and detailed data on their listeners, including analytics on demographics and engagement.²² While Spotify is the market leader for audio streaming in general, with 200 million monthly active listeners, Apple still leads the podcast market with more than 500,000 active podcasts including content in more than 100 languages.²³ Finally, the barriers to entry for new podcasters remain low, which means creativity and innovation of content on podcasts will continue to thrive.

GROWTH OPPORTUNITIES IN TARGET MARKETS

Though not new, podcasts will continue to grow as a medium internationally particularly with the young and educated audience — a highly sought target group that often function as thought-leaders in their societies. Reuters Institute's Digital News Report suggests 36 percent of survey respondents globally have listened to a podcast in the last month.²⁴ Some data suggest that the fastest growing podcast markets are

21 Apple Music Gains Global Market Share, but Spotify Is Still Far Ahead. [variety.com/2018/biz/news/apple-music-global-market-share-streaming-spotify-1202942424/](https://www.variety.com/2018/biz/news/apple-music-global-market-share-streaming-spotify-1202942424/)

22 Spotify's pitch to podcasters: valuable listener data. [theverge.com/2019/8/13/20802018/spotify-for-podcasters-dashboard-live-beta-analytics](https://www.theverge.com/2019/8/13/20802018/spotify-for-podcasters-dashboard-live-beta-analytics)

23 Podcast Statistics (2020). musicoomph.com/podcast-statistics/

24 Digital News Report. digitalnewsreport.org/ and Podcasts: Who, Why, What, and Where? digitalnewsreport.org/survey/2019/podcasts-who-why-what-and-where/

in the Spanish-speaking world — Chile, Argentina, Peru, and Mexico²⁵ — but there has been significant growth in other USAGM priority markets as well (Russia, China, as well as some African countries have seen rapid growth in dedicated listenership over the past year or two²⁶). Although the 18–24 and 25–34 age groups are more likely than older adults to consume podcasts,²⁷ podcasts as digital, personalized audio on-demand has the universal appeal of control and choice.

WHY AUDIENCES LISTEN TO PODCASTS

The younger audience mostly listen to podcasts to be inspired or entertained, and to be informed²⁸ making news as well as lifestyle content significant portions of the podcasting content universe. They also listen to podcasts to learn something new, making language learning another type of content USAGM networks can offer. What sets podcasting apart from traditional radio is its presentation that is more “informal” and storytelling done in “a more natural and less affected way.”

OPPORTUNITIES

With the exception of a few language services, USAGM networks have yet to experiment with podcasting beyond turning their radio broadcasts into a podcast format, while publishers with success in podcasting treat podcasts not merely as a means for distribution but as a medium on its own. With targeted podcasts developed specifically for the platform, USAGM networks can target younger listeners who are unlikely to use radio, as well as affluent, well-educated “influencers” in some of the agency’s more sophisticated target markets.

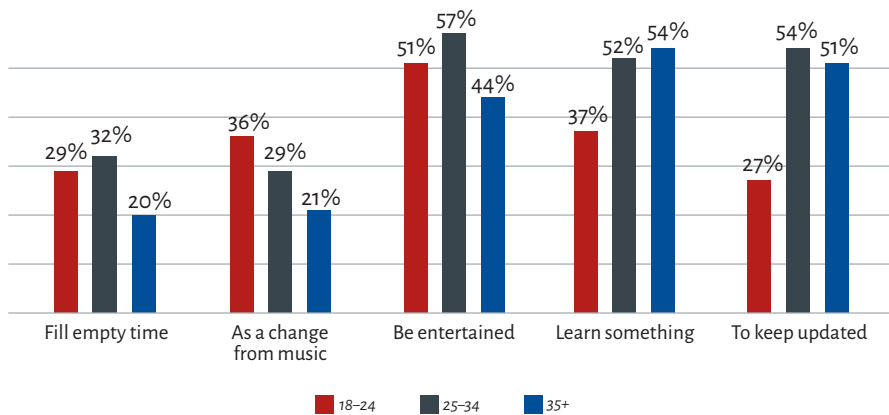
25 Top Growing Podcasting Countries. blog.voxnest.com/top-growing-podcasting-countries-march-2019/

26 The Podcasting Report. s3.amazonaws.com/media.mediapost.com/uploads/MagnaPodcastingReport2019.pdf; Podcasts in Russia (Russian) br-analytics.ru/blog/podcasts-in-russia-2019/; The Podcast market in China: a developing channel to reach consumers. daxueconsulting.com/podcast-market-china/; Podcasts listenership on the rise. cnbcafrica.com/videos/2019/07/26/podcasts-listenership-on-the-rise/; Three key South African podcasting trends, and why they matter to publishers. whatsnewinpublishing.com/three-key-south-african-podcasting-trends-and-why-they-matter-to-publishers

27 Podcasts: Who, Why, What, and Where? digitalnewsreport.org/survey/2019/podcasts-who-why-what-and-where/

28 Ibid

MAIN REASONS FOR LISTENING TO PODCASTS BY AGE



United Kingdom

Q11F. Which, if any, of the following are reasons why you listen to podcasts?

Base: 18-24/25-34/35+ that listened to a podcast in the last month. UK=53/101/160

Source: Reuters Institute, University of Oxford

The easy crossover of podcasts to other media such as video is also opening up more potential for growth. Publishers can easily turn a podcast into an audiogram or a social video on YouTube or other platforms. The crossover with YouTube and Twitter, for instance, will beef up the search engine optimization of the podcast.

As podcasts appeal to personal interests, they offer strong potential for engagement centered on these communities of personal interests. To tap into these communities, podcasters often collaborate with other content creators to broaden the audience reach. Most listeners are loyal and highly-engaged — 80 percent of listeners listen to all or most of each podcast episode and podcast users listen to an average of seven shows per week.²⁹ This level of engagement is almost unheard of in any other consumption medium.

29 The infinite dial 2019. edisonresearch.com/infinite-dial-2019/

Emerging Technologies

Emerging technologies are software and hardware solutions whose practical applications are mostly unrealized to date. With increasing worldwide internet access and tech literacy, emerging technologies open new opportunities for media in general, and USAGM in particular, to both optimize content distribution and enhance community building.

These technologies create digital communities, or “third places,” which might be used by media to reach and engage new audiences, or do it more efficiently. To effectively take advantage of new opportunities, USAGM should look to the trends in the for-profit sector, explore solutions from large IT companies, and also test products offered by emerging media-tech startups.

Emerging technologies can solve a number of problems faced by the USAGM networks:

1. DISTRIBUTION DIVERSIFICATION AND INFRASTRUCTURE OPTIMIZATION

- a. Tools and services that create additional channels for reaching audiences;
- b. Solutions that help in building infrastructure capacity;

2. AUTOMATION AND IMPROVING CONTENT RELEVANCE

- a. Tools and services that substitute for or optimize the human workforce;
- b. Tools and services providing deeper contact with the user, increasing persuasion and trust;

3. CIRCUMVENTION

- a. Tools for hostile environments enabling free data exchange;
- b. Tools to increase security and preserve anonymity while communicating.

NEW TECHNOLOGIES TO WATCH:

P2P (PEER TO PEER): People use their mobile devices to set up virtual networks and direct connections for data exchange without need for the Internet or the corresponding possibility of being surveilled or censored. At the summer 2019 protests in Hong Kong, when internet access was severely limited, activists exchanged audiovisual content, including photos and videos through Apple AirDrop, a technology built into iPhones that uses Bluetooth and does not require internet connectivity while guaranteeing a high speed of data exchange.

There are multiple file-sharing apps on the market using Bluetooth or Wi-Fi that allow users to share content without using the broader internet. In theory, access to the internet by one person from this “network” enables access to all members of the group, as when an Android or iPhone user shares internet access with other devices using the hotspot feature. Small private community platforms, based on such technologies as Wi-Fi (without access to the internet), will arise, and will connect, for example, people from one neighborhood or village.

This technology can be used as a content amplifier or circumvention tool in hostile media markets (closed markets like Korea or Eritrea, but also less restrictive countries such as Azerbaijan, Kazakhstan, or Belarus). Users in Turkmenistan, Cuba, and China widely use existing solutions, which will become more sophisticated.

ARTIFICIAL INTELLIGENCE, MACHINE LEARNING, NATURAL LANGUAGE PROCESSING: These technologies can help to optimize content relevance, avoid inefficiencies, eliminate language barriers, and improve content quality and infrastructure at the end. There are multiple established companies, startups, and non-profit organizations embracing AI/ML/NLP for mass media needs.³⁰ Currently, these tools help to convert text into audio and back, static graphic to video, translate audiovisual content to multiple languages, and improve SEO by advising on headlines, keywords, topics. In the future, AI and ML will help to make content more relevant

³⁰ How artificial intelligence is transforming the media industry technologyrecord.com/Article/how-artificial-intelligence-is-transforming-the-media-industry-72457

to end-users by improving quality, so that users are willing to spend more time consuming the information. AI/ML can improve editorial and marketing practices. Accessing the data analytics, technology can recommend topics that tend to be more popular or engaging, as well as recommending audiences that would be interested in the topic, how it should be promoted and when.³¹ Natural Language Processing can help with USAGM automatic translation and transcription from or into smaller and regional languages (Bambara, Uyghur, Tatar, Belarusian). Services operating in smaller languages face many limitations in placing ads, support service, search results, and lower exposure compared to “large languages” such as Russian, English, Spanish, Arabic, or French. This content will become more “findable” online as machines improve their ability to understand smaller languages.

ROBOTICS FOR AUTOMATION: USAGM can embrace chatbots and build bot networks where traditional means and platforms are not accessible. Bots can be directed to help users and content creators with navigation and perform work which used to be done manually. In the public discourse, bots are usually referenced as technologies embraced by hostile state actors, propagandist institutions and political agents, aiming to manipulate public opinion and meddle in democratic processes. However, there are multiple ways of using bots, including for circumvention, automation, getting feedback, and building community, and even supporting internal communications.³² Bots, chatbots, and botnets could be an efficient solution for content creators, publishers, and smaller outlets with a limited budget and working in restrictive environments. There are multiple cases of successful use of chatbots in media distribution. BBC built and launched bots for Facebook, Twitter and Telegram. USAGM services including RFE/RL Georgian (which uses the chatbot Freeda on Facebook) and VOA Russian (which operates Glasha on Telegram) have incorporated bots into their offerings for audiences. Most news media bots are simple programs that can send personalized

31 AI in Movies, Entertainment, and Visual Media – 5 Current Use-Cases emerj.com/ai-sector-overviews/ai-in-movies-entertainment-visual-media/

32 AI, automation and the media. ericsson.com/en/trends-and-insights/networked-society-insights/future-of-journalism/the-rise-of-robot-journalism

news or answer basic questions based on current news updates. These chatbots can be easily created with tools such as Chatfuel, Botsify77 Flow XO, or Manychat, and work with major messaging platforms like WeChat, Skype, Kik, Facebook Messenger, Slack, WhatsApp, and Twitter. One of the most successful multiplatform chatbots to date is Purple, which was launched to provide text message coverage from various news sites of the 2016 presidential primaries.³³ Following the elections, Purple expanded its coverage to sports and show business, conducting personalized conversations with its subscribers.

VIRTUAL REALITY (VR) AND AUGMENTED REALITY (AR): VR and AR are industries with quickly developing infrastructure. The VR market includes the technology itself, devices, products, and platforms for content distribution. With increasing access to the high-speed internet, reducing costs, and availability of stand-alone VR sets and AR devices on the market, this industry will shape a new space for journalists and media. USAGM networks are already experimenting with 360 degree videos and other interactive projects involving AR elements. RT recently launched a branded application for the Facebook/Oculus platform, where users can access RT content repackaged for VR. VR and AR can also be used for infotainment and edutainment, 360 live-streaming, meeting audiences online, and recording discussions, TV shows and multiple other forms of content. Today, VR and AR products belong to “premium” technology. However, some governments and companies, like HTC and Facebook, are investing in VR and AR services in order to (eventually) make them as cheap, accessible, and commonly used as a mobile phone. There are successful examples of using Facebook Spaces (VR product for interacting with other users through Oculus Gear) for recording Facebook Watch shows.

PUSH NOTIFICATIONS: Messaging platforms (such as WhatsApp, Messenger, or Telegram), mass texting through mobile phones (SMS), and push notifications are all technologies of direct messaging and can be used for journalistic content distribution. Push notifications do not create separate infrastructure but exploit what already exists: mobile apps, web browser,

³³ With Purple, you can get election updates and political info via text. niemanlab.org/2016/03/with-purple-you-can-get-election-updates-and-political-info-via-text/

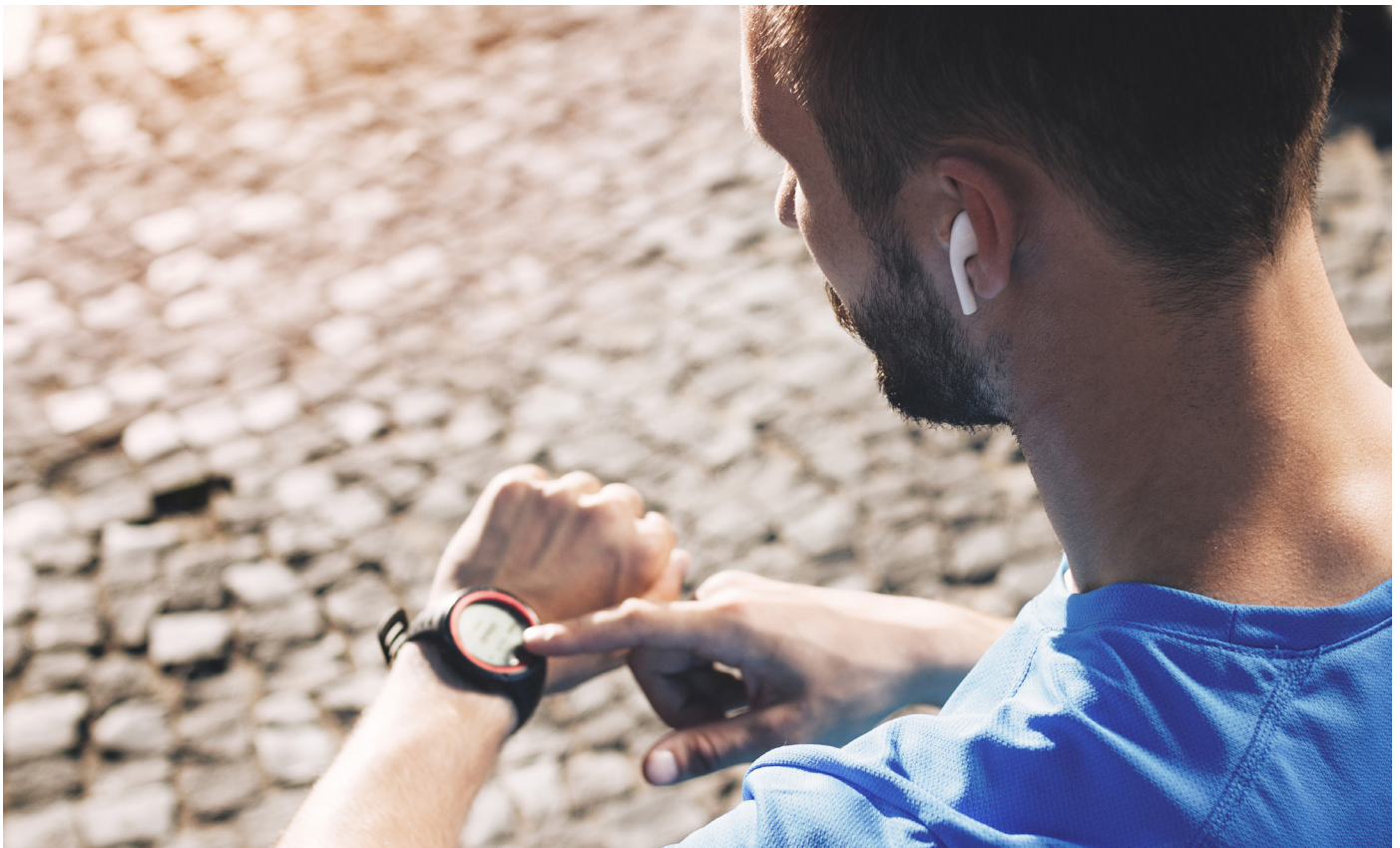
RSS-feeds, and Smart TVs. Some smart devices (in the “internet of things,” or IoT category), like smart homes, refrigerators, and car computers, also can be used for push notifications. Push notifications are usually deployed on a subscription basis; users give consent to being informed explicitly about news, new publications, or updates on the website. Research from 2017³⁴ divided push alerts into four categories: headline, teaser, round-up, and additional context. More than half of the alerts sent in that study were based on breaking news, and the study found that the majority provided additional context that went beyond a straight headline. BBC is constantly experimenting with push notifications to its mobile app users, which go to as many as 14 million subscribers. BBC also began sending silent alerts for less critical stories or those going out when an audience is likely to be asleep, and offered users the option to sign up for additional notifications related to the recent UK election.³⁵ The *New York Times* has created an 11-person team to focus on messaging and push alerts, to make them more personal, customized by time, language, and the platform where the end user will receive them. They particularly focus on the opt-out rate and seek to keep it lower than two per 1,000. The *Dallas Morning News* uses the browser notification service Pushly, which led to an increase of 4% in its overall views and 11% in returning views. At USAGM, multiple RFE/RL services are currently using in-browser push notifications and mobile app notifications through the network’s branded apps.

In contrast to traditional social media platforms like Facebook or Instagram, where content is shown algorithmically, theoretically guaranteeing relevance to the individual user, push messaging relies on the editor; the content should be selected carefully and fit the expectations and interests of the end-user. It is essential to be strategic and thoughtful. Each push should serve the reader in some way. It is important to think about how pushing on different platforms can be treated like a story package, where the components are complementary to one another.

34 Everyone loves push alerts, but there are problems. Like: What if readers don’t actually open them? niemanlab.org/2017/10/everyone-loves-push-alerts-but-there-are-problems-like-what-if-readers-dont-actually-open-them

35 How the push notification came to rival the Six O’Clock News. newstatesman.com/politics/media/2019/11/how-push-notification-came-rival-six-oclock-news

WEARABLE JOURNALISM. Wearable technology is changing the way consumers access news. Smartwatches allow users to listen to audio, access short stories, or read a summary of the latest news in comfortable and trimmed-down formats without losing the essence of the story. Besides watches, “smart clothes,” bracelets, and lenses provide access to the internet and the information produced by USAGM networks. Google Glass, which got an update in 2019, allows user to read news digests and interact with content, but also to listen to radio and podcasts. The *Washington Post*, the *New York Times*, CNN, BuzzFeed, and *The Guardian* have all developed apps for smartwatches, available on Apple Watch and Android devices. Users can check the latest news updates, but also make in-app purchases and subscribe to paid newsletters. The Flipboard Smartwatch version allows users to draw from blogs and publications in order to create their own personal magazine and share content on their social profiles.



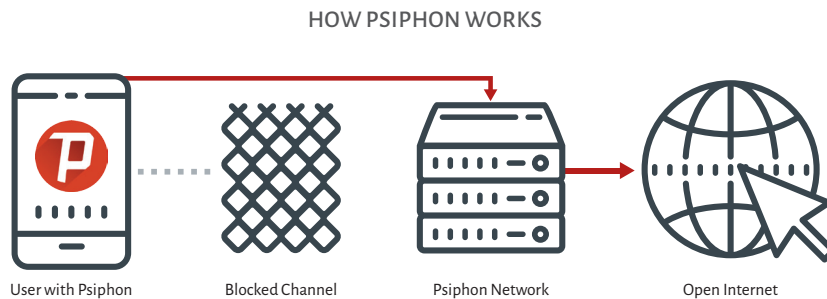
Countering Censorship and Surveillance

Threats to internet freedom have escalated dramatically in recent years. Repressive regimes are deploying a new generation of advanced censorship and surveillance technology that is designed to stifle dissent, track minorities, and manipulate content online. China alone spends billions of dollars each year to maintain its complex censorship and surveillance apparatus, while Russia and Iran are each investing hundreds of millions of dollars to build what are fundamentally “national intranets.” These and other efforts by repressive regimes are fundamentally re-shaping the internet from a shared, global platform to isolated networks of censorship and control. As a result, today, over two thirds of the world’s population live in a country where Internet access is restricted, and that number is growing. This daily suppression of freedom of expression stifles the fundamental human rights of all citizens, creates serious impediments to the practice of journalism, and prevents the development of open societies.

Technology can help fight increasingly sophisticated censorship and surveillance by repressive regimes. The primary objectives of projects and tools funded by USAGM through the Open Technology Fund are to provide uncensored access to the internet to individuals living in information-restrictive countries, and to protect journalists, sources, and audiences from repressive surveillance and digital attacks to ensure that they can safely create and consume USAGM content. This includes support for secure communication tools, targeted digital security interventions, and other forms of privacy and security technology.

EMERGING AND EXISTING TECHNOLOGIES

While no one technical solution is capable of addressing all possible scenarios, a range of emerging and existing technologies are available to overcome some common threats:



VPNS: Psiphon is a USAGM-funded, open source web-based proxy and desktop client anti-censorship Virtual Private Network (VPN) software that enables unfettered Internet access to citizens of repressive governments. Psiphon Mobile App allows for integration of Psiphon’s circumvention layer into apps deployed by USAGM broadcasters.

VPNs have become one of the most popular methods for circumventing government-imposed censorship and, as a result, have become the target of repressive governments. Unfortunately, many popular proprietary VPNs rely on underlying protocols that have numerous, widely known vulnerabilities, massive codebases, and significant performance issues. More advanced VPNs such as Wireguard address these vulnerabilities. Wireguard features a lightweight codebase, extensive security review, and integration of many important security features lacking in previous VPN protocols such as a “fail-closed” feature, which forces a more secure connection by default.

EMERGING CIRCUMVENTION TECHNIQUES: The Chinese government constantly updates the Great Firewall (GFW) to prevent Chinese citizens from using new circumvention techniques to access blocked content. This process of updates creates a perpetual cat-and-mouse game between Chinese censors and new circumvention techniques. In response, OTF has supported the creation of an entirely new subfield of circumvention research that relies on machine learning techniques to constantly analyze the GFW. Through this analysis, researchers have discovered four new “species” of circumvention techniques and more than 25 distinct ways

to overcome the GFW. These newly discovered techniques can rapidly evolve based on any changes made to the GFW and attempting to plug these holes in the GFW will in some cases open up new ones. The most promising mobile-friendly techniques are being pursued and developed into software kits for integration by circumvention tools. The researchers are also investigating techniques that will allow a content publisher to transmit information in ways that overcome the GFW and will allow users to access blocked content by simply pulling up the website on a browser.

SECURE DOCUMENT SHARING AND STORAGE: As part of their daily operations, journalists, media networks, and human rights organizations frequently collect, store, and share sensitive information. This information often contains multiple layers of sensitivity and requires varying forms of protection from governments that seek to surveil and censor their citizens. In order to address this threat and to protect information at rest and shared within an organization, OTF has supported the development of several open source, secure file storage and file-sharing system designed for journalists and human rights organizations, including Globaleaks, Tahoe-LAFS, OpenArchive, and OpenAppStack.

MOBILE SURVEILLANCE DETECTION: An international mobile subscriber identity-catcher (IMSI-catcher) is a surveillance device used to intercept mobile phone traffic and track mobile phone users. Over the last several years, repressive regimes have increasingly deployed IMSI-catchers during political protests to identify, track, and intercept the communications of protestors, journalists, and opposition groups in order to target, censor, and/or arrest them. In order to protect citizens from this repressive surveillance, OTF has supported the development of tools to detect the use of IMSI-catchers based on research conducted by the University of Washington and has piloted this technology in three Latin American cities.

COMBATTING INTERNET SHUTDOWNS: Over the last year, governments around the world have shut down the Internet over 188 times. In order to ensure that citizens can continue to access and share digital content in the face of Internet shutdowns, OTF has invested in unique peer-to-peer technologies that enable content-sharing and communication without an Internet or cellular connection. For example, OTF has supported the

development of Briar, an open source, decentralized, encrypted messaging system that is designed for journalists, human rights defenders, and anyone who needs a safe and easy way to communicate when Internet connectivity is uncertain. OTF has incubated F-Droid, an alternative app store for Android that allows users to easily share apps with others in their vicinity without an Internet connection. In addition, OTF has supported the development of Ouinet. Ouinet is a free, open source technology which allows web content to be served with the help of an entire network of cooperating nodes using peer-to-peer routing and distributed caching of responses.

Regulatory Challenges

Regulatory challenges to future distribution of USAGM content will be many. The challenge is not limited to governmental regulation. The very platforms on which content is distributed, even though private, have their own rules that may undermine our ability to gain distribution. Unlike government, the distribution companies are not transparent in their standards or algorithms. While money can eventually solve many regulatory challenges, lobbying is slow, country-specific, and subject to politics. The development of alternative means of transmission is only as good as the size of the installed user base able to receive the alternative transmissions. Neither seems assured.

In public or private regulatory environments, USAGM by itself will be a small fish, unlikely to get traction on its own. A preferred course of action might be to affiliate with multiple organizations representing other content creators (regardless of mission). As a second strategy, USAGM might leverage its U.S. government status and work more closely with existing USG-funded agencies, using technology as the hook to get our points of view listened to in overcoming the regulatory challenges we will face.

Definitions

5G: Fifth generation wireless (5G) is a wireless networking architecture built on the 802.11ac IEEE wireless networking standard, which aims to increase data communication speeds by up to three times compared to its predecessor, 4G.

Artificial Intelligence: The theory and development of computer systems able to perform tasks that normally require human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages.

Augmented Reality (AR): A technology that superimposes a computer-generated image on a user's view of the real world, thus providing a composite view.

Bot: An autonomous program on a network (especially the Internet) that can interact with computer systems or users, especially one designed to respond or behave like a player in an adventure game.

Botnet: A collection of individual devices working together as a single unit.

Catch-up TV/Streaming/Binge Watching: Terms used by the consumer to describe watching television via OTT and the related devices.

Chatbot: A computer program designed to simulate conversation with human users, especially over the Internet.

Emerging Technologies: New technologies that are currently developing or will be developed over the next five to ten years, and which will substantially alter the business and social environment.

Filter Bubbles: A situation in which an Internet user encounters only information and opinions that conform to and reinforce their own beliefs, caused by algorithms that personalize an individual's online experience.

Internet of Things (IoT): The interconnection via the internet of computing devices embedded in everyday objects, enabling them to send and receive data.

Low-Earth Orbit Satellites: Low earth orbits (LEO) are satellite systems used in telecommunication, which orbit between 400 and 1,000 miles above the earth's surface. They are used mainly for data communication such as email, video conferencing and paging.

Natural Language Processing: Natural language processing (NLP) is a branch of artificial intelligence that helps computers understand, interpret and manipulate human language. NLP draws from many disciplines, including computer science and computational linguistics, in its pursuit to fill the gap between human communication and computer understanding.

Machine Learning: Machine learning is a method of data analysis that automates analytical model building. It is a branch of artificial intelligence based on the idea that systems can learn from data, identify patterns and make decisions with minimal human intervention.

Messaging App: Software that enables messages to be sent and received. Although the term may refer to instant messaging or email software, it often refers to the texting app built into every cellphone and smartphone or to a third-party app that is used in lieu of the carrier's app.

Open Data: Data that can be freely used, shared and built-on by anyone, anywhere, for any purpose.

OTT Apps: Smart Televisions and connected devices such as Roku, AppleTV, and PlayStation have stores in which consumers download branded Apps in order to consume content. The use of the word Apps within USAGM has caused widespread confusion with the various, previously deployed news Apps. OTT Apps are not a replacement for news Apps.

Over-the-Top (OTT): A term used by the industry to differentiate video delivered through a traditional cable TV box and video delivered via another internet connected device, such as a Roku or Apple TV box, Amazon Fire stick, or gaming console. OTT is a term that is never used at the consumer level, and therefore should not be used to market B to C content.

Peer-to-Peer (P2P) Sharing: The transfer of files directly from one device to another device instead of routing them through a server. P2P software enables a device on the Internet to connect directly with another device for sharing/downloading of files without the intervention of a centralized server.

Podcast: A digital audio file made available on the Internet for downloading to a computer or mobile device, typically available as a series, new installments of which can be received by subscribers automatically.

Push Notification: An automated message sent by an application to a user when the application is not open.

Search Engine Optimization (SEO): The process of maximizing the number of visitors to a particular website by ensuring that the site appears high on the list of results returned by a search engine.

SLIN: Subscription Linear. While early days of OTT have focused largely on episodic viewing, increasingly, audiences are being served with linear channels via digital connections to an array of devices.

Smart Device: An electronic device that is cordless (unless while being charged), mobile (easily transportable), always connected (via WiFi, 3G, 4G etc.) and is capable of voice and video communication, data, internet browsing, “geo-location” (for search purposes) and that can operate to some extent autonomously.

Social Graph: A representation of the interconnection of relationships in an online social network.

Stories (social media format): Short vertical videos that can be seen exclusively on mobile devices.

SVOD, TVOD, AVOD: Subscription Video on Demand, Transactional Video on Demand, and Advertising Video on Demand. SVOD is the increasingly known “Netflix” model whereby a monthly or annual payment gives the consumer access to a wide variety of episodic content. A nuanced version is TVOD, whereby consumers only pay for what they watch. AVOD refers to a free service, supported by commercial advertising.

Third Place: A public setting that hosts regular, voluntary, and informal gatherings of people. It is a place to relax and have the opportunity to know and be known by others. (First place is home, and second place is work.)

Video on Demand (VOD): The consumer act of watching an episodic video file at their time of choosing, on their device of choice.

Virtual Reality (VR): An artificial environment which is experienced through sensory stimuli (such as sights and sounds) provided by a computer and in which one's actions partially determine what happens in the environment.

Zero-rating: Internet access plans which exempt particular data from counting against a user's data cap, or from accruing any excess usage charges.

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Cover photos clockwise from top left: 26 September 2019, Greece, Moria: A migrant uses her mobile phone in the refugee camp Moria on the Greek island Lesbos. Photo by: Angelos Tzortzinis/picture-alliance/dpa/AP Images; a man wearing a protective face mask uses his mobile phone at a subway station, Moscow, Russia. Sergey Pyatakov / Sputnik via AP; a migrant uses a mobile phone at a charging station at the Vucjak refugee camp outside Bihac, northwestern Bosnia, Sunday, Dec. 1, 2019. Despite the approach of harsh weather, hundreds of refugees and migrants are still stuck in northwest Bosnia in a makeshift camp described by international organizations as dangerous and inhumane. (AP Photo/Darko Bandic); Woman using smart phone listening on headphones, South_agency/iStock.

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